GEOGRAPHIC SCHOOL BULLETINS

THE NATIONAL GEOGRAPHIC SOCIETY, WASHINGTON 6, D.C.

VOLUME 37, NUMBER 11, DECEMBER 15, 1958 . . . *To Know This World, Its Life*

NATIONAL GALLERY OF ART,
KRESS COLLECTION

THERE came wise men from the east. . . . They saw the young child with Mary his mother, and fell down and worshipped him.

From "The Adoration of the Magi" by Fra Angelico and Fra Filippo Lippi (See Back Cover).

UMI

CONTENTS

No. 11, December 15, 1958

- Central Park
- Christmas Ornaments
- GLASS—Everyday Wonder
- How Venice Was Born
- Today's Venetians

THE NEW YORK TIMES

Many statues adorn the meadows and walks. Children gather in the lap of Hans Christian Andersen for reading hours. The "ugly duckling" himself listens raptly (right).

Like so much in the park, this statue was a gift—from a Danish association. Not far away, the carnival tones of another gift, the merry-go-round, pipe happily through the trees when the weather is good. As a Christmas present in 1950, Central Park received the Wollman Memorial Skating Rink.

JOYCE SARTWELL

A photograph of two old men playing chess on a park bench on a wintry day inspired a prominent New Yorker to give a handsome Chess and Checker Shelter. Mental athletes along Chess Row (left) may now move their knights and bishops on inside boards in bad weather.

Hosts of smaller, noisier gifts arrive constantly—at the Zoo. When camp is out at the end of summer the turtle population increases enormously. Snakes, skunks, and raccoons are frantically deposited, and as quickly set free in suitable surroundings if there is no room at the Zoo.

UMI

WIDE WORLD

Manhattan's Midtown Meadowland

TWINKLING LIGHTS of granite towers lace the wintry night above the winding paths of Central Park. Footsteps crunch past quiet cages in the Zoo. Sounds of traffic on Fifth Avenue fade as the clip-pity-clop of a horse-drawn carriage echoes across frozen woods and meadows. Ice cracks on a pond. A cardinal fluffs feathers against the cold.

Can this be New York City? Yes, the very heart of it. On the most expensive real estate in the world, a wise metropolis preserves a stretch of land and lakes, trees and craggy rocks, wild fowl and fountains.

Nowadays, New Yorkers almost take for granted this oasis in a desert of brick and concrete. But for years battles waged in press and pasture to bring the park into being.

In the 1830's Manhattan hit a booming stride. Buildings piled up on the island with incredible speed. A bursting population of over 300,000 was fast running out of breathing space. On hot summer days New Yorkers escaped to Staten Island and Hoboken, or hopped a boat for Albany.

Washington Irving and William Cullen Bryant urged the city fathers to set aside land for a great park before the island was covered with granite. The scrubland pasture chosen was already on the northern outskirts of the city.

In 1853, the city paid $7,389,727 for a rocky, swampy stretch of land in the center of the island—two-and-a-half-miles long and half-a-mile wide. The surveyors found cows, herds of swine, and some 5,000 human squatters.

Landscape architects Frederick Law Olmsted and Calvert Vaux set to work to build the great country park, for, like everything else on Manhattan, the park is man-made. Workers drained swamps, blasted rock, brought in topsoil and fertilizer, and planted trees from all over the world.

After 80 years of hard work the park emerged as we know it today: 840 acres of gardens, meadows, skating rinks, and bowling greens; seven man-made lakes graced with swans and geese; baseball diamonds and a band shell; a theater under the stars; miles of bridle paths and walks, babbling brooks, and giant rocks to climb; and a picture-book zoo where barking seals, balloon vendors, and children mix happily.

GEOGRAPHIC SCHOOL BULLETINS, copyright © 1958 by the National Geographic Society, Melville Bell Grosvenor, President. Published weekly during school months by the School Service Division, Ralph Gray, Chief. Assts.: Arthur P. Miller, Jr., Frank Sartwell, Katherine Crapster, Edward Schulz. Entered as second class matter, Wash., D.C. International copyright. All rights reserved. Rates: United States, $2.00 for 30 issues (one school year); Canada, $2.25; elsewhere, $2.50. U. S. only, three years (90 issues) for $5.00. The National Geographic Society is a nonprofit educational and scientific society established for the increase and diffusion of geographic knowledge.

Yule Tree Rekindles Ancient Tradition

A GLASS BALL dangles from a tree bough, echoing for us the twinkle of the stars above Bethlehem the night Christ was born.

But the custom dates back beyond that event, for there were "Christmas" trees long before there was a Christmas.

The tree that sparkles Christmas peace in a modern American home has a pagan as well as Christian history. Evergreen trees symbolized life for ancient peoples. In northern Europe, tree worship was common.

Romans celebrated Saturnalia, which fell about the time our Christmas does, with

WILLARD R. CULVER

MANUFACTURING DELIGHT, a worker adds white stripes to a Christmas tree ornament. The ball revolves against brushes which apply the paint. For extra glitter, it is dipped in ground-up glass before the paint dries. Tree decorations total a multi-million dollar business in the United States. Most American ornaments are made on machines—the ones that make light bulbs the rest of the year. Abroad they are more often fashioned by hand. The United States imports millions of fragile ornaments each year. The cheaper ones come from Japan and Poland, more expensive decorations are shipped from Germany.

merrymaking and gift-giving. They decorated homes and temples with tree boughs. The Druids of Britain gathered mistletoe and hung it in their homes.

From such roots grew many of the Christmas rituals you will follow this year.

The first man to hang ornaments on a tree in honor of the Christ Child is not identified, but many scholars believe he was St. Boniface, an English missionary to Germany in the 8th century. Boniface took advantage of the local reverence for trees, but substituted an evergreen for the sacred oak of Odin. The lighted tree is popularly credited to Martin Luther.

Hessian soldiers, brought in by the British during the Revolution, decorated the first American trees. Later, German immigrants honored the old rituals.

The attractive custom became part of our traditional Christmas in the latter part of the last century. This year, more than four of every five homes in the United States will have an ornamented tree. F.S.

UMI

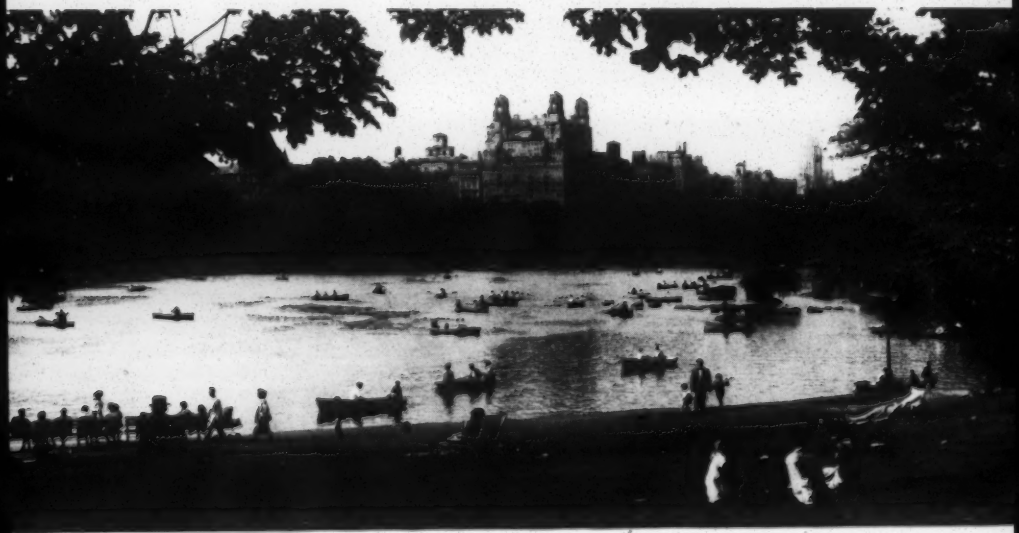
Easter Week brings baby chicks, ducks, and rabbits. Returning servicemen have added a brown lemur from Madagascar, a kangaroo, an Alaskan fox, flying phalangers from New Guinea and a host of other exotic animals.

Along with an estimated 54,000 visitors a day, the park plays host to twittering thousands of migratory birds. Just south of 79th Street a tangle of greenery and swamp beckons a remarkable variety of birds in early spring. The Ramble is said to attract more birds than any other equal area of open countryside. Sixty-six species have visited the spot in one day. To keep the feathered flood coming to their midtown haunt, The Ramble is carefully planted with berry bushes, laurel, and other wild shrubs. Squirrels scamper around the azalea pound. A murmuring stream spills down mossy rocks. Bird watchers wander happily about, lost from the city's cares.

Bridle paths wind through five-and-a-half miles of meadows and woods, skirting the Reservoir and Fifth Avenue. Boys launch white-sailed boats in gay regattas on the Round Pond, near the Andersen statue. Sailors bump merrily about in rowboats on the 72nd Street lake when the fleet is in. On the Mall, intended as a grand promenade, roller skating is the fashion. Concerts in the band shell float out to Fifth Avenue on Sunday afternoons in summer.

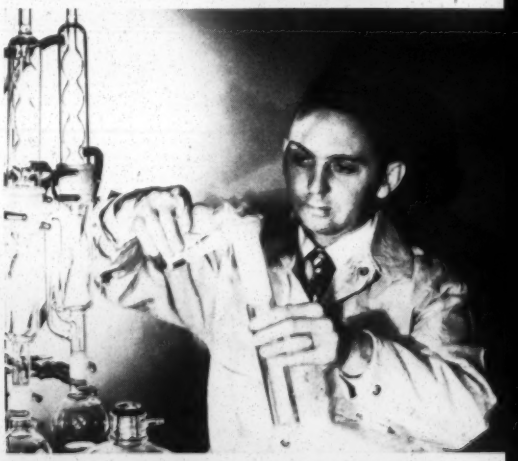
PHOTOGRAPHS BY THE NEW YORK TIMES

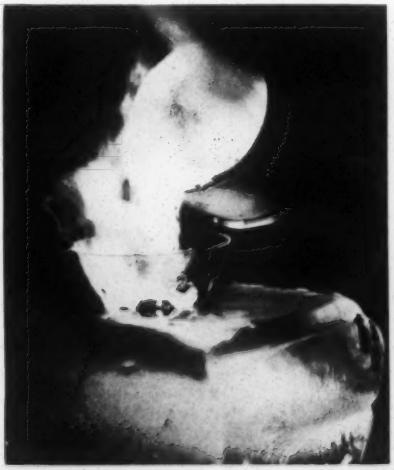
Frederick Law Olmsted would be proud of his favorite park if he were to visit it today. "The park," he said, "should as far as possible complement the town. . . . Let your buildings be as picturesque as your artists can make them. This is the beauty of the town. . . . The park should be the beauty of the fields, the meadow, the prairie, of the green pastures and still waters." K.C.

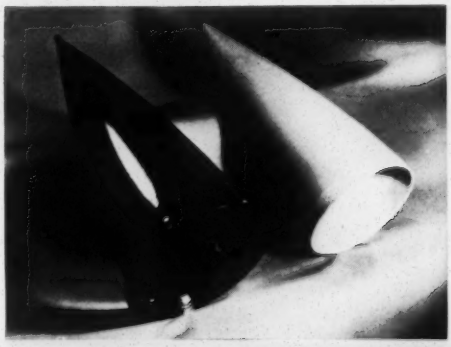


Glass in its almost infinite varieties can be tailored to do many jobs. *Soda-lime* glass, the most inexpensive and widely used, finds its way into common products like bottles, window panes, glass building blocks, and photographer's flashbulbs (top right). Christmas tree balls are soda-lime coated with a thin layer of metal, then decorated.

The elements boron and silicon give heat-resisting and corrosion-repelling characteristics to *Borosilicate* glass like this chemist's test tube. *Lead* glass, renowned as optical glass, also goes into tiny electronic capacitors, made by pressing thin layers of foil between ribbons of glass (bottom right).







Glassmaking wizardry unveils new wonders. The glass bowl sitting atop the cake of ice above is made from a special-formula glass so tough that molten bronze poured into it fails to crack it. The two missile cones (next to bottom, right) represent another hard-won "breakthrough." They are fashioned by heating glass to a temperature that will melt copper. The molecular structure of the glass changes, and it is "glass" no longer. The result, called *Pyroceram* by its developer, Corning Glass Works, is light, can withstand friction from blazing flight, yet allows the electronic "eyes" inside to function properly. A.P.M.

UMI

The EVERYDAY WONDER of GLASS

PHOTOGRAPHS FROM CORNING GLASS WORKS

GLASS, seemingly a familiar friend, actually is a many-sided personality.

The milk bottle, window pane, and electric light bulb are accepted miracles. But glass can also be as hard as steel, soft as a sponge, thin as thread, elastic as rubber, transparent as air.

As if these attributes aren't enough, it can also stop heat or cold, shield against atomic radiation, and resist acid corrosion.

Man did not invent glass. He merely took nature's hint. Stone Age men learned to fashion spearheads and arrow tips from the natural black glass spewed from volcanoes. American Indians used it to make knife blades with razorlike edges. Romans knew the classic glassmaking formula of sand, soda ash (they called it *nitre*), and limestone.

Modern technology has revolutionized glass manufacture. To the basic formula glassmakers have added almost every element found on the earth's surface. Each element adds its distinctive characteristic. Today modern factories stockpile more than 100 ingredients and one company says it has on file more than 65,000 formulas.

The "mullet" of raw glass above will be broken up and mixed together with some of these ingredients to start a new "melt." Out of the melt will come another batch of the industry's exciting new products. Glass drawn into thin fibers goes into insulation for wires and cables, and into glass tablecloths and draperies. Glass, boiled to a foam, then suddenly solidified, forms insulation for refrigerators and buildings.

WILLARD R. CULVER

In food factories and beverage plants, visitors see milk, ginger ale, and fruit juices pumped through pipes of glass instead of steel. Glass "plumbers" weld these pipes into place on the spot. Motorists drive behind shatterproof windshields made by sandwiching a layer of plastic resin between two sheets of glass.

Oddly enough, glass is almost perfectly elastic—up to its breaking point. The girl at left is pulling a sheet of tempered plate out of plane as registered by the ruler. When she releases it, the glass will flip back to its exact original position. Even when compressed with a weight for many years, glass will resume its original lines.

Queen City of the Adriatic

VENICE, in 1790, lay before the artist-cartographer in all its decadent glory (opposite page). The continuous carnival of the 18th century ended like a run-down calliope when Napoleon, a few years later, ordered proud banners of the dead maritime empire to be thrown at his feet.

Thus ended 11 centuries of power for the Queen City of the Adriatic, a city whose history was so closely wedded to geography that its rulers—the Doges—actually "married" the sea every year. The mystic ceremony acknowledged the Venetians' dependence on surrounding waters—which protected them from mainland marauders, and opened avenues to all the wealth of the Mediterranean and the Orient.

The cause of Venice's death—an all-conquering horde—also brought about its birth. Its founders were the displaced persons of the 5th century—chased from the mainland to mud islands by waves of barbaric Avars, Goths, and Huns. The refugees built huts on poles over the water, launched ships, and became merchants. In time, increasing wealth brought in by trade transformed the huts to marble palaces.

The city spread over the tidal flats. Seated on water, it was natural that water should form the streets—and so the famous canals came into being. Graceful gondolas served as taxis and delivery trucks in this strange metropolis, and still do. There has been so little change in Venice since its heyday that the scene at right, showing bottled water being delivered by canal, could have been made centuries ago.

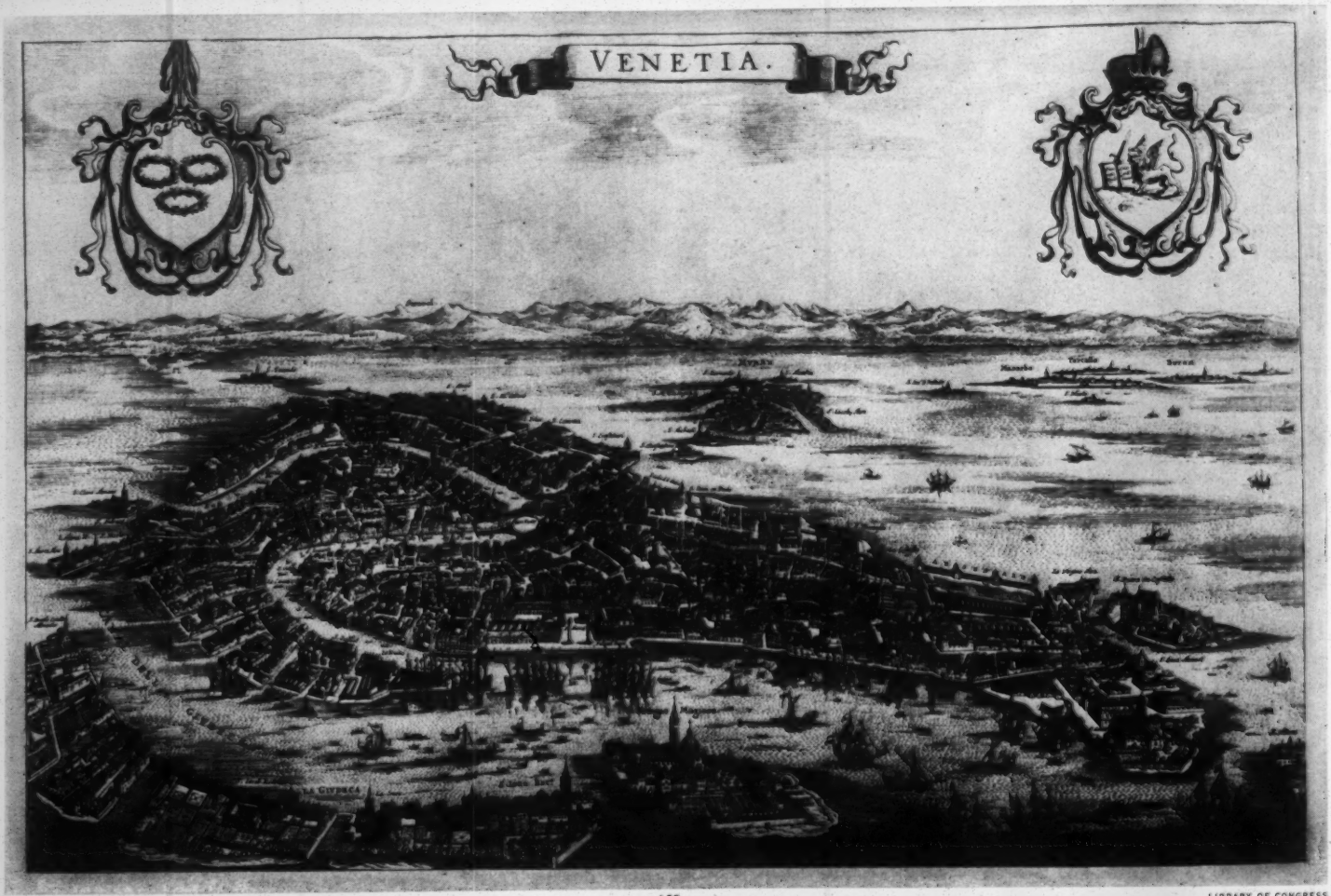
In like manner, though there are more bridges across the canals now, the historic engraving at the left could be used as a guide map today. Look at it and imagine this city as the strongest sea power of the Christian world, with an empire that included islands, cities, and mainland areas in all parts of the Mediterranean Sea.

The view is north, looking toward the Italian mainland across the lagoon that shelters the Venetian islets. The reverse S-shaped Grand Canal makes a broad avenue through the widest part of the city. Halfway along, the Rialto Bridge crosses. Behind its windows tiny shops remind that here Shylock, Shakespeare's Merchant of Venice, had a stall.

At the near end of the Grand Canal, the open area is St. Mark's Square. To its right rises the Doges' Palace, in Italian Gothic style. The domes behind it belong to the Cathedral of Saint Mark, an outstanding example of Byzantine architecture. R.G.

CLIFFORD J. KAMEN

UMI



LIBRARY OF CONGRESS

Most famous is the Lido, 15 minutes away by steamer. A defense outpost in Venice's days of power, it now ranks as a pleasure dome, with plush hotels, gambling casinos, and villas fronting a sandy beach. It is the scene of the Venice Film Festival, which attracts celebrities from all over the world.

Venice's cemetery is the island of San Michele. Gondolas draped in black velvet and heaped with flowers serve as hearses.

The pile-strengthened mud islands offer little space for factories, but craftsmanship flourishes. The coveted Venetian glass is shaped on the island of Murano, where the furnaces of the glassworks have been glowing steadily for five centuries. With steel rods and pincers master artisans fashion vases, glasses, and flowers that reflect the colors of the Venetian sky and lagoon.

On Burano Island, nimble-fingered women and children fill street stalls with hand-made handkerchiefs, tablecloths, shawls, and laces.

Venice in summer buzzes with tourists and art lovers, the soft voices of the Venetians, the lap of waves on the marble steps of palaces. Winter dams the flow of visitors, and the city is stilled.

The gondolas are taken from the canals for painting and caulking, and workers at the hotels return to their mainland hills to attempt to live on their summer wages until the money flows again. A long-time resident of Venice joked that the gondoliers are stout Christian Democrats during the fat tourist season, and Communists in the lean winter.

Six centuries ago, when Venice controlled the world's richest trade routes, wealth poured in the year around. Venice was "Queen of the Adriatic," unchallenged mistress of the seas. Each year on the feast of the Ascension the Doge threw a ring into the sea and proclaimed: "We wed thee, O Sea, by this token of our utter and perpetual lordship over thee."

The Doges were overboastful. Venice is slowly but noticeably sinking beneath the waves from which it rose 1,500 years ago. The millions of wooden piles on which the city stands are yielding under the weight of the granite and marble buildings and monuments. The Cathedral

ARDEAN MILLER

UMI

EWING GALLOWAY

Tourists Replace Venetian Trade

TODAY TOURISTS, rather than the spices of Samarkand, provide the wealth of Venice.

Some three quarters of the city's income is brought in by visitors. "Yank Go Home" is not chalked on walls, but "Viva il Turismo!"

And the tourists riding in gondolas toward the Santa Maria della Salute Church (above) might respond "Viva Venezia."

Gondolas are the trade-mark. Smiling gondoliers in traditional straw hats (right) carry tourists on their rounds, much as they did in the days when Lord Byron and Dante sailed these canals. The boats are black (under an edict of 1562) and lopsided so they will travel in a straight line even though pushed by a single oar.

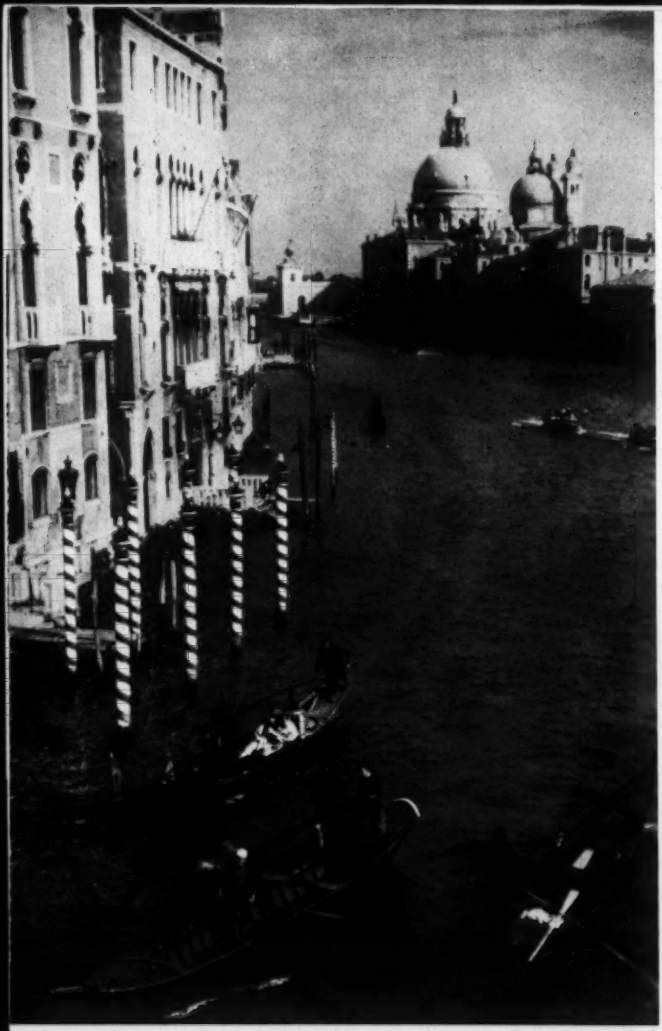
JOHN SCOFIELD, NATIONAL GEOGRAPHIC STAFF

Rounding corners the gondoliers sing out an old cry that inspired the composer Wagner.

Gondoliers have less to shout about these days. Where once they formed the major transportation of the city, they are now being displaced by powerboats, which are cheaper and faster. In the sixteenth and seventeenth centuries, 10,000 gondoliers swept their boats along the canals. Now there are fewer than 500.

The gateway to the main island is the Piazza di San Marco (square of St. Mark's), aflutter with begging pigeons (below). It is the center of monumental Venice, with the great church flanked by bell tower, clock tower, and the Palace of the Doges. It is accented by twin columns, one bearing a statue of Saint Theodore, the other the winged lion of Saint Mark, symbol of the city.

Other islands dot the broad lagoon, many with their own distinctive attractions.



KATHERINE CRAPSTER, NATIONAL GEOGRAPHIC STAFF

Gondolas Ply Watery Streets

VENICE'S GRAND CANAL, most famous of the 177 waterways that lace the city, is one of the longest, and handsomest, "main streets" in the world. Winding two and a half miles, it splits the city into two unequal parts. Its banks are lined with about 200 marble palaces built by Venetian nobles between the 12th and 18th centuries. Gothic arches and Venetian tracery adorn the Renaissance palace at left. Striped mooring posts carry the owner's colors. The gondolas wear black to comply with medieval law, but bright awnings often lighten the funeral aspect. Motorboats foaming behind are taking over the gondolas' work. Fewer than 500 remain in use. The distant church of Santa Maria della Salute commemorates Venice's deliverance from plague in the 17th century.

About the Cover

This Italian Renaissance masterpiece captures the first Christmas—the moment when the Wise Men present their gifts of gold, frankincense, and myrrh to the Prince of Peace. A faithful reproduction, in brilliant color, 18 by 18 inches (75¢), is available from the National Geographic Society.

BECAUSE of the holidays there will be no *Bulletins* for the next two weeks. Next issue will be January 5, 1959. *Merry Christmas and a Happy New Year!*

of St. Mark for years has borne deep scars of age.

In submerged basements dampness and salt corrode wood, iron, and mortar. Wind-whipped tides pour over St. Mark's Square every now and then. Venice sinks one-tenth of an inch a year.

Decade after decade the Venetians have been reluctant to change the appearance of the city, on the grounds that "any change would be a change for the worse." New buildings, they argue, would be out of harmony with the palaces and villas.

However, there are encouraging signs. Repairs have saved the Ca' d'Oro, one of the loveliest of gold-adorned Gothic-Venetian palaces; a new front decorates the Santa Lucia railway station; and all five synagogues in Venice's ghetto have been restored, largely with United States funds.

UMI